

SAFETY & HEALTH NOTE

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Potential Oxygen Deficiency While Wearing Air-Supplied Suits

A situation known as an air-off condition, which may occur during donning and doffing an air-supplied suit, has the potential to cause oxygen deficiency. The condition can occur at anytime, for example, during emergency escape, or during training exercises with life-threatening results. Test results showed that oxygen levels are depleted to 16 percent in approximately 40 seconds. The first physiologic sign of oxygen deficiency is an increased rate and depth of breathing. An oxygen concentrations of 16 percent or less causes dizziness, rapid heartbeat, and headaches. If oxygen concentration continues to decrease, loss of consciousness and eventually death may occur.

Oxygen deficiency is the primary concern when the supply of breathing air is stopped while a person is in an air-supplied suit. However, recent observations at several DOE sites have revealed that training sessions and pre-job briefings for use of air-supplied suits emphasize personnel exiting contaminated areas before removing the suit hood during an air-off condition. This emphasis was sometimes in conflict with the written standard operating procedures. Moreover, this practice can put suit users in serious oxygen-deficient atmospheres before they can reach clean areas. To avoid such serious consequences, personnel, regardless of work location, **must** be trained to remove the suit top or helmet in an air-off condition. The new

requirements serve to clarify and emphasize proper response to an air-off condition. The following requirements must be included in all Department Of Energy (DOE) air-supplied suit acceptance training, standard operating procedures and onsite pre-job briefings.

- Preventing an oxygen-deficient atmosphere in the suit must take precedence over contamination control.
- Training must include demonstrating the technique involved in removing the suit top or helmet from the head without assistance.
- Pre-job briefings must restate these requirements to the suit users before every entry where air-supplied suits are to be used.

If you have any questions or require additional information, contact Jacqueline D. Rogers, at 301-903-5684.



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